Abell Galaxy Cluster Catalog

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The purpose of our research was to compare our weak lensing masses of Abell galaxy clusters against those of blank star fields from the same redshift distribution in order to verify that the detected lensing signal was not just due to large-scale structure. We input catalogs of galaxy ellipticities into a Mathematica notebook that then estimated the mass of either the cluster or the blank field. We then performed a KS test on the galaxy cluster and blank field masses to find the likelihood that the two sets of data were from the same distribution. We found the result of the KS test to be .049. The KS test showed that the two sets of data had an ~5% chance of being from the same distribution. We are fairly certain that the mass measurements of the galaxy clusters are not entirely due to large-scale structures. Further research can use this method to compare galaxy cluster masses against blank star fields in order to verify that significant masses have been found for the clusters.